



Applied Sonochemistry: The Uses of Power Ultrasound in Chemistry and Processing

By Timothy J. Mason, John P. Lorimer

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Power ultrasound has been used for many years in two specific industrial areas: cleaning and plastic welding. Over the last ten years an increasing interest has been shown in its potential for use over a much wider range of chemistry and processing which has been grouped together under the general title of sonochemistry. Most of these uses depend on the generation of acoustic cavitation in liquid media but this text, while underlining the importance of the physics and mathematics of cavitation, mainly concentrates on applications of the technology.

After an introduction to the topic and some historical background to the uses of power ultrasound the general principles of acoustic cavitation are explored including some background physics, bubble dynamics and factors which influence cavitation. The remainder of the book incorporates a series of applications of sonochemistry which illustrate the types of physical and chemical effects of ultrasonically induced cavitation which will interest chemists and engineers alike. Amongst the major topics included are chemical synthesis, environmental protection and remediation of water, sewage and soils, polymer synthesis and processing, electrochemistry including both analytical and synthetic aspects and plating. The final chapter reviews the range of ultrasonic equipment available in the laboratory and the progress made towards the scale-up of sonochemistry.

The level is introductory to semi-advanced and no topic has been taken to a particularly specialist level since it is intended that this should be of general interest to readers with a scientific background.

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Review

"...a truly up-to-date textbook...displays a mature approach to the task of giving the reader the key information..." (*Jnl of Chem Tech & Biotech*, Vol. 79(2), February 2004)

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